UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,637	02/22/2002	Glen David Stone	SONY-16500	3668

28960   7590   07/09/2008
HAVERSTOCK & OWENS LLP
162 N WOLFE ROAD
SUNNYVALE, CA 94086

EXAMINER
MERED, HABTE

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
07/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>16 November 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1,3-8 and 10-43</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1,3-8 and 10-43</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>22 February 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   The amendment filed on 11/16/2007 has been entered and fully considered.

2.   Claims 1, 3-8, 10-43 are pending in the instant Application. Claims 2 and 9 have

been previously cancelled. Claims 1, 8, 19, 29, 40 and 42 are the independent base

claims.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   **Claim 1** is rejected under 35 U.S.C. 102(e) as being anticipated by Romans et al

(US 6, 587, 453).

       Regarding **claim 1**, Romans'453 discloses a method of transmitting data within a

network **(See Figure 2)** including one or more of a first type of device **(A Voice and**

Data Node on Figure 2) operating according to a first protocol **(Isochronous traffic**

via TDMA protocol – see Column 2:27-29) and a second protocol **(Asynchronous**

traffic via CSMA/CA protocol – see Column 2:30-36) and one or more of a second

type of device **(Figure 2, Voice Terminals)** operating according to only the second

protocol **(Isochronous traffic via TDMA protocol – see Column 2:27-29)** where

devices of the first type and devices of the second type communicate with each other

(All nodes in Figures 2 and 3communicate with each other as illustrated in Columns 2:37-45) comprising:

a. establishing a periodic cycle including a first portion and a second portion **(See Figure 4 – Contention Period and Contention Free Period - Column 2:56-65)** ;

b. allowing only transmissions according to the first protocol during the first portion **(Isochronous traffic via TDMA protocol during Contention Free Period - See Column 2:56-65)**; and

c. allowing only transmissions according to the second protocol during the second portion **(Asynchronous traffic via CSMA/CA protocol- See Column 2:56-65)**, wherein the first protocol has priority over the second protocol. **(See Column 2:13-15, In the Contention Free Period Isochronous data has priority over Asynchronous data in that the transmission of Asynchronous data starts <u>only</u> after the complete transmission of Isochronous data. Further given a super frame that repeats periodically as shown on Column 3:30-31 the duration of the Contention Free Period where isochronous data is transmitted determines the length of the Contention Period where Asynchronous data is transmitted and effectively shows the priority given to Isochronous data)**.

5.　　　**Claim 40** is rejected under 35 U.S.C. 102(e) as being anticipated by Ito et al (US Pub No. 2001/0043731 A1).

Regarding **claim 40**, Ito'731 discloses a method of transmitting data within a network **(See Figures 2 and 18 and paragraph 74 – the communication system shown in Figure 2 can be part of a home or office network or by itself a network**

as the devices in the system communicate with each other) including one or more

of a first type of device **(i.e. device 201 of Figure 2– digital VTR)** operating according

to an isochronous protocol **(Isochronous transmission sending video/image to**

monitor 203 – see paragraph 202) and an asynchronous protocol **(Asynchronous**

protocol transmission of command and file data to printer and monitor – see

paragraph 190) and one or more of a second type of device **(i.e. device 202 of Figure**

2 - printer) operating according to only the asynchronous protocol **(Printer 202 only**

accommodates Asynchronous protocol transmission – see paragraphs 198 and

207), wherein devices of the first type and devices of the second type communicate with

each other within the network **(All nodes in Figures 2, 3 and 18 communicate with**

each other as illustrated in Paragraphs 83, 130, 198, and 202), comprising:

establishing a periodic cycle including a first portion and a second portion **(See**

Figures 17 and 21. In Figure 17 periodic cycle #m starts with cycle start packet

(CSP) and has two sections for isochronous transmission and asynchronous

transmission where each section starts with a sub-action gap);

allowing only transmissions according to the isochronous protocol during the first

portion**(Isochronous traffic always occurs between the 1st and 2nd sub-action gap**

); and

allowing only transmissions according to the asynchronous protocol during the

second portion**(Asynchronous traffic always occurs between the 2nd sub-action**

gap and start of next cycle as also shown in Figure 21), wherein the isochronous

protocol has priority over the asynchronous protocol **(In paragraphs 83 and 171**

clearly teaches that isochronous protocol transmission has priority over

asynchronous protocol transmission).

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a
person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived
by the manner in which the invention was made.

7.   **Claims 1, 3-5, and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Palmer et al (US 6, 141, 355), hereinafter referred to as Palmer in view of

Einbinder et al (US 6, 704, 302 B2).

Regarding **claim 1**, Palmer'355 discloses a method of transmitting data within a

network including one or more of a first type of device **(Figure 2, DA 2 (Device Adapter**

2)) operating according to a first protocol **(Real-Time isochronous protocol because**

it supports element 200 RTD (Real Time Device). See also Column 1, Lines 20-32)

and a second protocol **(Non-Real Time Ethernet protocol because it supports**

element 100 NRTD (Non-Real Time Device)) and one or more of a second type of

device **(Figure 2, DA 3 (Device Adapter 3))** operating according to only the second

protocol **(Non-Real Time Ethernet protocol because it supports element 100 NRTD**

(Non-Real Time Device)) where devices of the first type and devices of the second

type communicate with each other **(All DAs in Figures 2 and 6 communicate with**

each other as illustrated in Columns 7, Lines 10-25 and 9, Lines20-32 and in

Figure 5B) comprising:

a. establishing a periodic cycle including a first portion and a second portion **(See Column 4, lines 55-67 and Column 7, lines 10-25 where Palmer'355 teaches a periodic time frame with two portions for transmitting isochronous and non-real time Ethernet data)** ;

b. allowing only transmissions according to the first protocol during the first portion **(See Column 4, lines 55-67 – only isochronous real time data like voice and audio is transmitted)**; and

c. allowing only transmissions according to the second protocol during the second portion**(See Column 4, lines 55-67 – only non-real time Ethernet data is transmitted)**

Palmer'355 fails to disclose the first protocol (i.e. real time isochronous protocol) has priority over the second protocol (i.e. non-real time Ethernet protocol).

However, the above mentioned claimed limitations are well known in the art as evidenced by Einbinder'302. In particular, Einbinder'302 discloses the first protocol (i.e. real time isochronous protocol such as voice) has priority over the second protocol (i.e. non-real time Ethernet protocol) **(See Column 2, lines 26-30 and 60-67 where Einbinder'302 teaches giving real time isochronous protocol high priority)**.

In view of the above, having the method of Palmer'355 and then given the well established teaching of Einbinder'302, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of

Palmer'355 as taught by Einbinder'302, since Einbinder'302 clearly states that such a

modification allows high quality voice transmission over data network.

Regarding **claim 3**, Palmer'355 discloses a method further comprising converting

the transmission into a format understood by a receiving device. **(All the Device**

Adapters convert the isochronous and asynchronous input to Ethernet packets

as shown in Figure 3)

Regarding **claim 4**, Palmer'355 discloses a method wherein duration of the first

portion is dependent on a number of active streams of the first protocol within the

network. **(See Column 5, lines 7-18 Palmer shows that the length of time allotted**

for the first protocol, i.e. isochronous, is dependent on the number of active

streams which in turn depend on the isochronous channels established.)

Regarding **claim 5**, Palmer'355 discloses a method further comprising

establishing an active stream of the first protocol **(i.e. isochronous)** within the network

and guaranteeing first protocol bandwidth to the active stream. **(See Column 4, lines**

55-67; Column 5, lines 7-18; and Column 7, lines 10-25 – note that the first portion

of the periodic time frame is dedicated to isochronous protocol)

Regarding **claim 7**, Palmer'355 discloses a method wherein the first protocol is

isochronous **(isochronous/real-time/TDM see Column 1, lines 23-32)** capable and

the second protocol is asynchronous **(ETHERNET or CSMA/CD protocol which is**

asynchronous See Column 9, lines 1-8).

8.   **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over

Palmer'355 in view of Einbinder'302 as applied to claim 1, and further in view of Lo et al

(US 6, 324, 178).

Regarding claim 6, the combination of Palmer'355 and Einbinder'302 discloses

all aspects of the claimed invention as set forth in the rejection of claim 1 including a

second type of device operating according to Ethernet protocol **(See Palmer'355**

Figure 2 DA 3) but fails to teach a method wherein the first type of device operates

according to IEEE 1394 protocol.

Lo'178 discloses a method wherein the first type of device operates according to

IEEE 1394 protocol. **(Lo'178 clearly shows the bridge circuit connecting device**

based on IEEE 1394 to a device based on Ethernet protocol in Figure 4. See also

Column 7, Lines 40-53).

In view of the above, having the method based on the combination of Palmer'355

and Einbinder'302 and then given the well established teaching of Lo'178, it would have

been obvious to one having ordinary skill in the art at the time of the invention was

made to modify the method based on the combination of Palmer'355 and Einbinder'302

as taught by Lo'178, since Lo'178 clearly states in Column 1, Lines 16-25 that in

networked communication system the popular domains to be bridged are based on

Ethernet and IEEE 1394 protocols and further IEEE 1394 protocol provides ability to

support both isochronous data such as video and voice as well as asynchronous data

making it easy to allow networking of different voice, video, audio, and data devices in

home and small office networks.

9.   **Claims 8 and 10-17** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Banks et al (US 6, 747, 979), hereinafter referred to as Banks, in view of

Palmer'355 and Suda et al (US 7, 275, 255 B2).

Regarding **claim 8**, Banks'979 discloses a modified hub device configured for

coupling between two or more devices operating according to two or more different

protocols **(See Column 10, Lines 35-45 – the network layer bridge is effectively a**

hub connecting devices in a LAN setting and the two different protocols are 802.3

LAN and IEEE 1394 LAN), the hub device **(Figure 5A, element 51)** wherein devices of

the first type and devices of the second type communicate with each other **(See**

Column 13, lines 40-67 and See Column 1, Lines 20-25 and Figure 5B) comprising:

a. a first interface **(i.e. Figure 5A, element 53)** configured for coupling to and

communicating with one or more of a first type of device operating according to a first

protocol **(i.e. isochronous)** and a second protocol **(i.e. asynchronous) (Note that**

Figure 5A, element 53 is an IEEE 1394 LAN as illustrated in Column 10, Line 44.

As defined by the Standards Bodies and also confirmed by the Applicant – IEEE

1394 supports asynchronous and isochronous traffic. Clearly the Applicant is

referring to the support for two different traffic types as constituting two different

protocols);

b. a second interface **(i.e. Figure 5A, element 52)** configured for coupling to and

communicating with one or more of a second type of device operating according to only

the second protocol **(i.e. asynchronous only) (Figure 5A, element 52 is 802.3 LAN**

as illustrated in Column 10, Line 43 and uses asynchronous protocol only).

Banks'979 discloses bridges communicating with a router, which is a layer 3

switch, via a LAN segment as shown in Figure 6. Banks'979, however, fails to

expressly disclose a bridge (i.e. hub) that is directly connected to and communicating

with a switch device that sends periodic signal, which starts the start of a period having

a first portion and second portion.

Palmer'355 discloses a bridge **(In Figure 2, all Device Adapters act as a**

bridge) with an interface configured for coupling to and communicating with the

switching device **(Figure 2, element 4, x-hub switch, and Figure 4a)** that sends

periodic signal, which starts the start of a period having a first portion and second

portion **(Palmer'355 shows a period having a first and second portion in Column**

4:55-67 and to establish these cyclic periods Palmer'355 shows use of signaling

protocol between the hubs (i.e. DAs) and the switch (i.e. X-hub) in Column 7:5-10

and further given the signaling protocol it is inherent for the switch (i.e. X-hub) to

send signals to the DAs to indicate the start of a phase or period.)

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Banks'979's' bridge to incorporate an interface configured

for coupling to and communicating with the switching device. The motivation being the

use of an Ethernet switch allows a particular LAN to connect and communicate with

more than one different LAN as illustrated in Palmer'355's Column 3, lines 57-67 and

Column 4, lines 19-32.

Banks'979 also fails to disclose a transmission scheme where periodic signals

are sent to signal the start of a period having a first portion and a second portion,

wherein only communications in the first protocol are allowed during the first portion and

only communications in the second protocol are allowed during the second portion.

Suda'255 discloses a transmission scheme **(i.e. Figure 17)** shown in where

periodic signals **(i.e. Cycle Start Packet)** are sent to signal the start of a period **(i.e.**

125 usec and repeats) having a first portion **(i.e. between CSP and first sub-action**

gap) and a second portion **(i.e. between the first sub-action gap and the next CSP**

for the following cycle), wherein only communications in the first protocol **(i.e.**

isochronous protocol) are allowed during the first portion and only communications in

the second protocol **(i.e. asynchronous protocol)** are allowed during the second

portion **(Note that each cycle is divided into two portions for transmitting**

isochronous packets and asynchronous packets as discussed by Suda'255 in

Column 13, Lines 30-67 and Column 14, Lines 1-20).

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Banks'979s' bridge to incorporate a transmission scheme

to handle asynchronous and isochronous traffic. The motivation being given that

asynchronous and isochronous traffics are the main type of traffics handled in home

and small office networks and having such a transmission scheme allows different

devices to communicate in these types of networks efficiently with high QoS as can

easily be inferred from Suda'255 Column 1, Lines 50-55.

Regarding **claim 10**, Banks'979 fails to disclose a modified hub device further

comprising a conversion circuit coupled to the first interface, the second interface and

the third interface for converting transmissions into a format understood by a receiving

device.

Palmer'355 discloses a modified hub device **(See Figure 3)** further comprising a

conversion circuit coupled to the first interface **(Figure 3, element 1004)**, the second

interface **(Figure 3, element 1006)** and the third interface **(Figure 3, element 1008)** for

converting transmissions into a format understood by a receiving device. **(See Column**

10, Lines 1-10 where the storing and conversion of RTD and NRTD formats

occurs)

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Banks'979's apparatus to incorporate a conversion circuit

to format packets in a manner understood by receiving device. The motivation being

such an arrangement allows communication between different devices having different

protocols.

Regarding **claim 11**, the combination of Banks'979, Palmer'355, and Suda'255

discloses a modified hub device **(Banks'979's Figure 3)** wherein duration of the first

portion **(i.e. isochronous protocol)** is dependent on a number of active streams of the

first protocol **(See Column 5, lines 7-18 Palmer shows that the length of time**

allotted for the first protocol, i.e. isochronous, is dependent on the number of

active streams which in turn depend on the isochronous channels established.

Suda'255 also effectively shows the same teaching in Figure 17).

Regarding **claim 12**, the combination of Banks'979, Palmer'355, and Suda'255

discloses a modified hub device wherein the modified hub device communicates with

the switching device **(i.e. Banks'979 layer 3 router 68 talks with switching devices 61 and 62 – see Figure 6 and also Column 14, Lines 24-35)** and establishes an active stream involving a device of the first type **(Palmer'355's RTD devices in Figure 1)** coupled to the hub device **(i.e. Palmer'355's Figure 3 and 4 show the hub device talking to the RTD)** and further wherein appropriate bandwidth for the active stream is guaranteed when the active stream is established **(See Palmer'355's Column 8, Lines 9-12 where bandwidth is guaranteed for the RTD time sensitive active stream)**.

Regarding **claim 13,** the combination of Banks'979, Palmer'355, and Suda'255 discloses a modified hub device wherein the modified hub device communicates with the switching device **(i.e. Banks'979 layer 3 router 68 talks with switching devices 61 and 62 – see Figure 6 and also Column 14, Lines 24-35)** and establishes an active stream involving a device of the first type **(Palmer'355's RTD devices in Figure 1)** coupled to the hub device **(i.e. Palmer'355's Figure 3 and 4 show the hub device talking to the RTD)** and to assign a label corresponding to the active stream . **(See Palmer'355's Column 8, Lines 9-12 where bandwidth is guaranteed for the RTD time sensitive active stream. It is inherent for the system to mark the newly created streams with some form of identification or label to distinguish at the minimum between asynchronous and isochronous flows)**

Regarding **claim 14**, Banks'979 discloses a modified hub device **(i.e. Figure 5A, element 53)** wherein the first type of device operates according to IEEE 1394 protocol and the second type of device **(i.e. Figure 5A, element 52)** operates according to Ethernet protocol. **(Figure 5A, element 53 is an IEEE 1394 LAN as illustrated in**

Column 10, Line 44. Figure 5A, element 52 is 802.3 LAN as illustrated in Column 10, Line 43).

Regarding **claim 15**, Banks'979 discloses a modified hub device wherein the first protocol is isochronous and the second protocol is asynchronous. **(Since Banks'979 device supports IEEE 1394 protocol support for Asynchronous and Isochronous traffic based on IEEE standards is inherent.)**

Regarding **claim16**, the combination of Banks'979, Palmer'355, and Suda'255 discloses a modified hub device **(i.e. Banks'979's Figure 5A, element 51)** wherein communications from the first type of device **(i.e. real time devices)** in the second protocol **(i.e. asynchronous)** are prioritized **(i.e. arbitration in Figure 15)** during the second portion over communications from the second type of device **(i.e. non-real time device)** in the second protocol **(i.e. asynchronous) (Note that in Suda'255's Figure 15 arbitration occurs to determine priority in the 2nd half of the cycle).**

Regarding **claim 17**, the combination of Banks'979, Palmer'355, and Suda'255 discloses a modified hub device **(i.e. Banks'979's Figure 5A, element 51)** wherein communications from the second type of device **(i.e. non-real time device)** in the second protocol **(i.e. asynchronous)** are prioritized **(i.e. arbitration in Figure 15)** during the second portion over communications from the first type of device **(i.e. real time devices)** in the second protocol **(i.e. asynchronous) (Note that in Suda'255's Figure 15 arbitration occurs to determine priority in the 2nd half of the cycle).**

10.   **Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over

Banks'979 in view of Palmer'355 and Suda'255 as applied to claim 8 above, and further

in view of Thaler et al (US 6, 772, 267).

Regarding **claim 18**, the combination of Banks'979, Palmer'355, and Suda'255

teaches all aspects of the claimed invention as set forth in the rejection of claim 8 but

does not disclose a modified hub device wherein the switching device is configured for

coupling to a remote network of devices thereby providing a wide area network.

Thaler'267 discloses a modified hub **(Figure 1, elements 100, and 112 are**

hubs) device wherein the switching device **(Figure 1, element 104)** is the switching

device is configured for coupling to a remote network of devices thereby providing a

wide area network **(Figure 1, element 108 is a WAN).**

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify the bridge based on the combination of Banks'979,

Palmer'355, and Suda'255 to incorporate an interface configured for coupling to and

communicating with a switching device configured for coupling to a remote network of

devices. The motivation for coupling to remote network devices is to access the

Internet and have the ultimate networking capability.

11.   **Claims 19-25 and 29-36** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Palmer'355, in view of Banks'979 and Einbinder'302.

Regarding **claim 19**, Palmer'355 discloses a switching device **(See Figure 2,**

element 4, Figure 4A, and Figure 5A, and Figure 6, element 6) configured for

coupling to two or more hub devices **(All the DAs in Figures 2 and 6 are hubs).**

Palmer'355 further discloses the switching device comprising:

a. a plurality of ports **(Figure 4A shows 8 inputs and corresponding Figure 4B**

shows 8 DAs (i.e. hubs) and Column 11: 43-50 illustrates that each port is coupled

to a corresponding DA or Hub), each port coupled to a corresponding hub device for

interfacing with devices coupled to the corresponding hub device **(Figure 4B shows 8**

DAs (i.e. hubs) and Column 11: 43-50 illustrates that each port is coupled to a

corresponding DA or Hub); and

b. a control circuit coupled to the plurality of ports **(See Figures 4A, elements 45**

is a processor that acts as a controller).

Palmer'355 also discloses a transmission scheme where periodic signals are

sent to signal the start of a period **(i.e. time frame see Column 4, Lines 55-67)** having

a first portion and a second portion **(i.e. 1st and 2nd period –see Column 4, Lines 55-**

67), wherein only communications in the first protocol **(i.e. isochronous)** are allowed

during the first portion and only communications in the second protocol **(i.e.**

asynchronous) are allowed during the second portion. **(Palmer'355 shows a period**

having a first and second portion in Column 4, Lines 55-67 and to establish these

cyclic periods Palmer shows use of signaling protocol between the hubs (i.e.

DAs) and the switch (i.e. X-hub) in Column 6, Lines 15-20, Column 7, Lines 5-23

and further using the signaling protocol the switch (i.e. X-hub) sends signals to

the DAs to indicate the start of a phase or period or effectively the time frame

schedule indicating beginning of first and second period.)

Palmer'355 fails to disclose hub devices providing interfaces to one or more of a

first type of device operating according to a first protocol and a second protocol.

Banks'979's discloses hub devices **(Figure 5A, element 51)** providing interfaces

to one or more of a first type of device operating according to a first protocol **(Figure**

5A, element 53 is an IEEE 1394 LAN as illustrated in Column 10, Line 44. As

defined by the Standards Bodies and also confirmed by the Applicant – IEEE

1394 supports asynchronous and isochronous traffic. Clearly the Applicant is

referring to the support for two different traffic types as constituting two

different protocols) and a second protocol; and one or more of a second type of

device operating according to only the second protocol **(Figure 5A, element 52 is**

802.3 LAN as illustrated in Column 10, Line 43. See Column 10, Lines 35-45 – the

network layer bridge is effectively a hub connecting devices in a LAN setting)

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Palmer'355's switching device by incorporating

Banks'979's bridge/hub device. The motivation being Banks'979's network layer bridge

that acts as a hub for interconnecting 1394 LAN to Ethernet LAN facilitates multimedia

data exchange in different formats.

Palmer'355 fails to disclose the first protocol (i.e. real time isochronous protocol)

has priority over the second protocol (i.e. non-real time Ethernet protocol).

However, the above mentioned claimed limitations are well known in the art as

evidenced by Einbinder'302. In particular, Einbinder'302 discloses the first protocol (i.e.

real time isochronous protocol such as voice) has priority over the second protocol (i.e.

non-real time Ethernet protocol) **(See Column 2, lines 26-30 and 60-67 where**

Einbinder'302 teaches giving real time isochronous protocol high priority).

In view of the above, having the device of Palmer'355 and then given the well

established teaching of Einbinder'302, it would have been obvious to one having

ordinary skill in the art at the time of the invention was made to modify the device of

Palmer'355 as taught by Einbinder'302, since Einbinder'302 clearly states that such a

modification allows high quality voice transmission over data network.

Regarding **claim 20**, the combination of Palmer'355, Banks'979, and

Einbinder'302 discloses a switching device **(Banks'979's Figure 6 shows a router**

switch 68 connecting the hubs) with hubs **(Banks'979's Figure 6, elements 61 and**

62) and end devices **(Banks'979's nodes a and b of Figure 6)**, wherein devices of the

first type **(i.e. IEEE 1394 – Node B)** and devices of the second type **(i.e. Ethernet –**

Node A) communicate with each other. **(Banks discloses a modified hub device**

(Figure 5A, element 51 and Figure 6, elements 61 and 62) wherein devices of the

first type (Figure 5A, element 53 or Node B of Figure 6 is an IEEE 1394 LAN as

illustrated in Column 10, Line 444) and devices of the second type (Figure 5A,

element 52 or Node A of Figure 6 is 802.3 LAN as illustrated in Column 10, Line

43) communicate with each other (See Column 1, Lines 20-25 and Figure 5B))

Regarding **claim 21**, Palmer'355 discloses a switching device, wherein duration

of the first portion is dependent on a number of active streams of the first protocol. **(See**

Column 5, Lines 7-18 Palmer'355 shows that the length of time allotted for the

first protocol, i.e. isochronous, is dependent on the number of active streams

which in turn depend on the isochronous channels established.)

Regarding **claim 22,** Palmer'355 discloses a switching device **(i.e. X-Hub 4 of**

Figure 2) that communicates with the hub devices **(i.e. All the DAs in Figure 2; See**

also Column 4, Lines 54-67) Palmer'355 also discloses a transmission scheme that

establishes an active stream involving a device of the first type **(i.e. isochronous or**

RTD) coupled to the hub device **(i.e. DAs)** and further wherein appropriate bandwidth

for the active stream **(i.e. isochronous)** is guaranteed when the active stream is

established. **(See Column 4, Lines 55-67; Column 5, Lines 7-18; and Column 7,**

Lines 10-25 where Palmer'355 discloses establishing isochronous flows with

guaranteed QoS and Bandwidth).

Regarding **claim 23,** Palmer'355 discloses a switching device **(i.e. X-Hub 4 of**

Figure 2) that communicates with the hub devices **(i.e. All the DAs in Figure 2; See**

also Column 4, Lines 54-67). Palmer'355 also discloses a transmission scheme that

establishes an active stream involving a device of the first type **(i.e. isochronous or**

RTD) coupled to the hub device **(i.e. DAs)** and to assign a label corresponding to the

active stream **(i.e. isochronous). (See Column 4, Lines 55-67; Column 5, Lines 7-**

18; and Column 7, Lines 10-25. Isochronous streams are created when the

bandwidth can be guaranteed. It is inherent for the system to mark the newly

created streams with some form of identification or label in order to distinguish it

at the minimum from the asynchronous/non-real time flows).

Regarding **claim 24**, the combination of Palmer'355, Banks'979, and

Einbinder'302 discloses a switching device wherein the first type of device **(i.e.**

Banks'979 Figure 5A, element 53) operates according to IEEE 1394 protocol and the

second type of device **(i.e. Banks'979 Figure 5A, element 52)** operates according to

Ethernet protocol. **(Note that Banks'979's Figure 5A, element 53 is an IEEE 1394**

LAN as illustrated in Column 10, Line 44. Note also Banks'979's Figure 5A,

element 52 is 802.3 LAN as illustrated in Column 10, Line 43).

Regarding **claim 25** the combination of Palmer'355, Banks'979, and

Einbinder'302 discloses a switching device wherein the first protocol is isochronous

capable and the second protocol is asynchronous. **(Since Banks'979 device supports**

IEEE 1394 protocol simultaneous support for Asynchronous and Isochronous

traffic based on IEEE standards is inherent.)

Regarding **claim 29**, Palmer'355 discloses a network of devices **(See Figure 2)**

comprising:

a. a switching device **(See Figure 2, element 4, Figure 4A, and Figure 5A, and**

Figure 6, element 6) including:

i. a plurality of ports **(Figure 4A shows 8 inputs and corresponding**

Figure 4B shows 8 DAs (i.e. hubs) and Column 11, Lines 43-50 illustrates

that each port is coupled to a corresponding DA or Hub), each port coupled

to a corresponding hub device for interfacing with devices coupled to the

corresponding hub device **(Figure 4B shows 8 DAs (i.e. hubs) and Column 11:**

43-50 illustrates that each port is coupled to a corresponding DA or Hub);

and

ii. a control circuit coupled to the plurality of ports **(See Figures 4A,**

elements 45 is a processor that acts as a controller and is coupled to the 8

ports shown in Figure 4B). Palmer'355 also discloses a transmission scheme

where periodic signals are sent to signal the start of a period **(i.e. time frame see**

Column 4, Lines 55-67) having a first portion and a second portion **(i.e. 1st and**

2nd period –see Column 4, Lines 55-67), wherein only communications in the

first protocol **(i.e. isochronous)** are allowed during the first portion and only

communications in the second protocol **(i.e. asynchronous)** are allowed during

the second portion. **(Palmer'355 shows a period having a first and second**

portion in Column 4, Lines 55-67 and to establish these cyclic periods

Palmer shows use of signaling protocol between the hubs (i.e. DAs) and

the switch (i.e. X-hub) in Column 7, Lines 5-23 and further using the

signaling protocol the switch (i.e. X-hub) sends signals to the DAs to

indicate the start of a phase or period.)

b. a plurality of modified hub devices **(i.e. all DAs in Figure 2 including DA2**

1000 are effectively the modified hubs) each including:

i. a first interface **(i.e. interface of DA2 with RTD 200 – actual interface**

depicted as element 1006 of Figure 3) configured for coupling to and communicating

with one or more of a first type of device operating according to the first protocol **(i.e.**

first protocol is real time protocol as indicated in Column 9, Lines 18-30)

ii. a second interface **(i.e. interface of DA2 with NRTD 100 – actual**

interface depicted as element 1004 of Figure 3) configured for coupling to and

communicating with one or more of a second type of device operating according to only

the second protocol **(i.e. second protocol is non-real time or asynchronous**

protocol as indicated in Column 9, Lines 18-30).

iii. a third interface **(i.e. interface of DA2 with one of the ports of X-**

Hub/switch 4 of Figure 2 – actual interface depicted as element 1008 of Figure 3)

coupled to one of the plurality of ports **(Figure 4A shows 8 inputs and corresponding**

Figure 4B shows 8 DAs (i.e. hubs) and Column 11, Lines 43-50 illustrates that

each port is coupled to a corresponding DA or Hub).

Palmer'355 fails to disclose hub devices providing interfaces to one or more of a

first type of device operating according to a first protocol and a second protocol.

Banks'979's discloses hub devices **(Figure 5A, element 51)** providing interfaces

to one or more of a first type of device operating according to a first protocol **(Figure**

5A, element 53 is an IEEE 1394 LAN as illustrated in Column 10, Line 44. As

defined by the Standards Bodies and also confirmed by the Applicant – IEEE 1394

supports asynchronous and isochronous traffic. Clearly the Applicant is referring

to the support for two different traffic types as constituting two different

protocols) and a second protocol and one or more of a second type of device operating

according to only the second protocol **(Figure 5A, element 52 is 802.3 LAN as**

illustrated in Column 10, Line 43. See Column 10, Lines 35-45 – the network layer

bridge is effectively a hub connecting devices in a LAN setting).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Palmer'355's switching device by incorporating Banks'979's bridge/hub device. The motivation being Banks'979's network layer bridge that acts as a hub for interconnecting 1394 LAN to Ethernet LAN facilitates multimedia data exchange in different formats.

Palmer'355 fails to disclose the first protocol (i.e. real time isochronous protocol) has priority over the second protocol (i.e. non-real time Ethernet protocol).

However, the above mentioned claimed limitations are well known in the art as evidenced by Einbinder'302. In particular, Einbinder'302 discloses the first protocol (i.e. real time isochronous protocol such as voice) has priority over the second protocol (i.e. non-real time Ethernet protocol) **(See Column 2, lines 26-30 and 60-67 where Einbinder'302 teaches giving real time isochronous protocol high priority)**.

In view of the above, having the device of Palmer'355 and then given the well established teaching of Einbinder'302, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device of Palmer'355 as taught by Einbinder'302, since Einbinder'302 clearly states that such a modification allows high quality voice transmission over data network.

Regarding **claim 30**, it is noted that the limitations of claim 30 corresponds to that of claim 20 as discussed above, please see the Examiner's comments with respect to claim 20 as set forth in the rejection above.

Regarding **claim 31**, Palmer'355 discloses a modified hub device **(Figure 2 DAs or Figure 3, element 1000)** further comprising a conversion circuit coupled to the first

interface **(Figure 3, element 1004)**, the second interface **(Figure 3, element 1006)** and the third interface **(Figure 3, element 1008)** for converting transmissions into a format understood by a receiving device. **(See Column 10, Lines 1-10 Palmer'355 discussion on storing, formatting and storing data destined for different devices.)**

Regarding **claim 32**, it is noted that the limitations of claim 32 corresponds to that of claim 21 as discussed above, please see the Examiner's comments with respect to claim 21 as set forth in the rejection above.

Regarding **claim 33**, it is noted that the limitations of claim 33 corresponds to that of claim 22 as discussed above, please see the Examiner's comments with respect to claim 22 as set forth in the rejection above.

Regarding **claim 34**, it is noted that the limitations of claim 34 corresponds to that of claim 23 as discussed above, please see the Examiner's comments with respect to claim 23 as set forth in the rejection above.

Regarding **claim 35**, it is noted that the limitations of claim 35 corresponds to that of claim 24 as discussed above, please see the Examiner's comments with respect to claim 24 as set forth in the rejection above.

Regarding **claim 36**, it is noted that the limitations of claim 36 corresponds to that of claim 25 as discussed above, please see the Examiner's comments with respect to claim 25 as set forth in the rejection above.

12.   **Claim 26, 27, 37, and 38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer'355 in view of Banks'979 and Einbinder'302 as applied to claims 19 and 29 above, and further in view of Krishnakumar et al (US 6, 611, 529 B1).

Regarding **claim 26**, the combination of Palmer'355, Banks'979, and

Einbinder'302 discloses a switching device (i.e. Palmer'355's x-Hub in Figures 2 and 4).

The combination of Palmer'355, Banks'979, and Einbinder'302 fails to disclose a

switching device wherein communications from the first type of device in the second

protocol are prioritized during the second portion over communications from the second

type of device in the second protocol.

However, the above mentioned claimed limitations are well known in the art as

evidenced by Krishnakumar'529. In particular, Krishnakumar'529 discloses a switching

device **(Figure 1, hub 11)** wherein communications from the first type of device **(i.e.**

Real Time Station) in the second protocol **(i.e. asynchronous)** are prioritized during

the second portion over communications **(i.e. contention period)** from the second type

of device **(i.e. non-real time station)** in the second protocol **(i.e. asynchronous or**

non-real time) (Krishnakumar'529 discloses real time devices have priority over

non-real time devices during the contention period which is the second part of

the time frame as illustrated in Column 4, Lines 50-67, Column 1, Lines 45-60. and

Column 3, Lines 40-50).

In view of the above, having the device based on the combination of Palmer'355,

Banks'979, and Einbinder'302 and then given the well established teaching of

Krishnakumar'529, it would have been obvious to one having ordinary skill in the art at

the time of the invention was made to modify the device based on the combination of

Palmer'355, Banks'979, and Einbinder'302as taught by Krishnakumar'529, since

Krishnakumar'529 clearly states that such a modification allows priority access for real

time traffic in contention based networks as indicated in Column 4, Lines 50-55.

Regarding **claim 27**, the combination of Palmer'355, Banks'979, and

Einbinder'302 discloses a switching device (i.e. Palmer'355's x-Hub in Figures 2 and 4).

The combination of Palmer'355, Banks'979, and Einbinder'302 fails to disclose a fails to

disclose a switching device wherein communications from the second type of device in

the second protocol are prioritized during the second portion over communications from

the first type of device in the second protocol.

However, the above mentioned claimed limitations are well known in the art as

evidenced by Krishnakumar'529. In particular, Krishnakumar'529 discloses a switching

device **(Figure 1, hub 11)** wherein communications from the second type of device **(i.e.**

non-real time device) in the second protocol **(i.e. contention based period)** are

prioritized during the second portion over communications from the first type (i.e. real

time device) of device in the second protocol **(i.e. asynchronous or non-real time)**

(Krishnakumar'529 discloses real time devices have priority over non-real time

devices during the contention period which is the second part of the time frame

as illustrated in Column 4, Lines 50-67, Column 1, Lines 45-60. and Column 3,

Lines 40-50. However the non-real time devices have equal priority as the real

time devices when the real time devices generate non-real time signals as

illustrated in Column 4, Lines 41-46).

In view of the above, having the device based on the combination of Palmer'355,

Banks'979, and Einbinder'302 and then given the well established teaching of

Krishnakumar'529, it would have been obvious to one having ordinary skill in the art at

the time of the invention was made to modify the device based on the combination of

Palmer'355, Banks'979, and Einbinder'302as taught by Krishnakumar'529, since

Krishnakumar'529 clearly states that such a modification allows priority access for real

time traffic in contention based networks as indicated in Column 4, Lines 50-55.

Regarding **claim 37**, it is noted that the limitations of claim 37 corresponds to that

of claim 26 as discussed above, please see the Examiner's comments with respect to

claim 26 as set forth in the rejection above.

Regarding **claim 38**, it is noted that the limitations of claim 38 corresponds to that

of claim 27 as discussed above, please see the Examiner's comments with respect to

claim 27 as set forth in the rejection above.

13.   **Claims 28 and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Palmer'355 in view of Banks'979 and Einbinder'302 as applied to claims 19 and 29

respectively above, and further in view of Thaler'267.

Regarding **claim 28**, the combination of Palmer'355, Banks'979, and

Einbinder'302 teaches all aspects of the claimed invention as set forth in the rejection of

claims 19 and 29 but does not disclose a modified hub device wherein the switching

device is configured for coupling to a remote network of devices thereby providing a

wide area network.

Thaler'267 discloses a modified hub **(Figure 1, elements 100, and 112 are**

hubs) device wherein the switching device **(Figure 1, element 104)** is the switching

device is configured for coupling to a remote network of devices thereby providing a

wide area network **(Figure 1, element 108 is a WAN).**

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify the combination of Palmer'355's, Banks'979's, and

Einbinder'302's bridge to incorporate an interface configured for coupling to and

communicating with a switching device configured for coupling to a remote network of

devices. The motivation for coupling to remote network devices is to access the

Internet and have the ultimate networking capability.

Regarding **claim 39**, it is noted that the limitations of claim 38 corresponds to that

of claim 28 as discussed above, please see the Examiner's comments with respect to

claim 28 as set forth in the rejection above.

14.   **Claim 41** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito'731

in view of Lo'178.

Regarding **claim 41**, Ito'73 discloses all aspects of the claimed invention as set

forth in the rejection of claim 40 including a first type of device (i.e. isochronous)

operating according to IEEE 1394 protocol (see Ito'731 Figure 2, 201 transmitting

isochronous and asynchronous to the printer as illustrated in paragraphs 190 and 202)

but fails to teach a method wherein the second type of device operates according to

Ethernet protocol.

Lo'178 discloses a method wherein the second type of device operates **(i.e.**

device connected to element 440 of Figure 4) according to Ethernet protocol.

(Lo'178 clearly shows the bridge circuit connecting device based on IEEE 1394 to a device based on Ethernet protocol in Figure 4. See also Column 7, Lines 40-53).

In view of the above, having the method of Ito'731and then given the well established teaching of Lo'178, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Ito'731as aught by Lo'178, since Lo'178 clearly states in Column 1, Lines 16-25 that in networked communication system the popular domains to be bridged are based on Ethernet and IEEE 1394 protocols and further IEEE 1394 protocol provides ability to support both isochronous data such as video and voice as well as asynchronous data making it easy to allow networking of different voice, video, audio, and data devices in home and small office networks.

15.   **Claims 8 and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heil (US 5450411) in view of Brown (US Pub. 2004/0019731 A1)

Regarding **claim 8**, Heil'411 also discloses a modified hub device **(Figure 2, element 22 – ATM network interface)** configured for coupling between two or more devices **(Figures 1…M are processors that can reside in a different devices)** operating according to two or more different protocols **(As indicated in Figure 3 each processor either based on isochronous protocol or non-isochronous protocol)** and a switching device **(Figs. 1&3 – element 24 – ATM switch device)**, wherein devices of the first type and devices of the second type communicate with each other, the hub device comprising:

a. a first interface **(Figure 2, element 22 – talking to a device that has both**

types of processors as shown in Figure 5) configured for coupling to and

communicating with one or more of a first type of device operating according to a first

protocol and a second protocol **(A given device can have two type of processors as**

shown in Figure 5 and hence using both isochronous and non-isochronous

protocol);

b. a second interface **(Figure 2, element 22 – talking to a device that has a**

one type of processor based on either isochronous or non-isochronous)

configured for coupling to and communicating with one or more of a second type of

device operating according to only the second protocol **(A given device can have one**

type of processor as shown in Figure 3 and hence using either isochronous or

non-isochronous protocol – see Column 5, Lines 10-20); and

c. a third interface configured for coupling to and communicating with the

switching device **(See interface between elements 22 and 24 in Figure 3)** .

Heil'411 fails to disclose a transmission scheme where periodic signals are sent

to signal the start of a period having a first portion and a second portion, wherein only

communications in the first protocol are allowed during the first portion and only

communications in the second protocol are allowed during the second portion.

Suda'255 discloses a transmission scheme **(i.e. Figure 17)** shown in where

periodic signals **(i.e. Cycle Start Packet)** are sent to signal the start of a period **(i.e. 125**

usec and repeats) having a first portion **(i.e. between CSP and first sub-action gap)**

and a second portion **(i.e. between the first sub-action gap and the next CSP for the**

following cycle), wherein only communications in the first protocol **(i.e. isochronous**

protocol) are allowed during the first portion and only communications in the second

protocol **(i.e. asynchronous protocol)** are allowed during the second portion **(Note**

that each cycle is divided into two portions for transmitting isochronous packets

and asynchronous packets as discussed by Suda'255 in Column 13, Lines 30-67

and Column 14, Lines 1-20).

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Heil'41's device to incorporate a transmission scheme to

handle asynchronous and isochronous traffic. The motivation being given that

asynchronous and isochronous traffics are the main type of traffics handled in home

and small office networks and having such a transmission scheme allows different

devices to communicate in these types of networks efficiently with high QoS as can

easily be inferred from Suda'255 Column 1, Lines 50-55.

Regarding **claim 42**, Heil'411 discloses a network of devices **(See Figure 2)**

comprising: a. a switching device **(Figure 3 – element 24 atm switch))** including: I. a

plurality of ports **(all atm switches have ports)**; and II. a control circuit coupled to the

plurality of ports **(some form of control switching circuit has to be interfaced to the**

ports and can be as simple as the actual switching element as it has to switch

from one port to another) and b. a plurality of modified hub devices **(Figure 3 element**

22 – ATM network interface) each including: i. a first interface configured for coupling

to and communicating with one or more of a first type of device operating according to

the isochronous protocol and the asynchronous protocol **(A given device can have**

two type of processors as shown in Figure 5 and hence using both isochronous

and non-isochronous protocol);

ii. a second interface configured for coupling to and communicating with one or more of

a second type of device operating according to only the asynchronous protocol**(A given**

device can have one type of processor as shown in Figure 3 and hence using

either isochronous or non-isochronous protocol); and

iii. a third interface coupled to a corresponding one of the plurality of ports **(See**

interface between elements 22 and 24 in Figure 3).

Heil'411 fails to disclose sending a periodic signal which signals the start of a

period having a first portion and a second portion, wherein only communications in an

isochronous protocol are allowed during the first portion and only communications in an

asynchronous protocol are allowed during the second portion; wherein the isochronous

protocol has priority over the asynchronous protocol.

Suda'255 discloses sending a periodic signal **(See Figure 17, CSP – Cycle Start**

Packet) which signals the start of a period having a first portion **(i.e. isochronous)** and

a second portion **(i.e. asynchronous)**, wherein only communications in an isochronous

protocol are allowed during the first portion **(i.e. between CSP and second sub-action**

gap only isochronous traffics moves) and only communications in an asynchronous

protocol are allowed during the second portion **(between the second sub-action gap**

and the next cycle CSP only asynchronous information moves); wherein the

isochronous protocol has priority over the asynchronous protocol portion **(See Column**

13, Lines 37-45) (Note that each cycle starts with a CSP signal and is divided into

two portions for transmitting isochronous packets and asynchronous packets as

discussed by Suda'255 in Column 13, Lines 30-67 and Column 14, Lines 1-20.

Isochronous traffic has priority over Asynchronous priority).

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Heil'41's device to incorporate a transmission scheme to

handle asynchronous and isochronous traffic. The motivation being given that

asynchronous and isochronous traffics are the main type of traffics handled in home

and small office networks and having such a transmission scheme allows different

devices to communicate in these types of networks efficiently with high QoS as can

easily be inferred from Suda'255 Column 1, Lines 50-55.

16.   **Claim 43** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heil'411

in view of Suda'255 as applied to claim 42, and further in view of Lo'178.

The combination of Heil'411 and Suda'255 fails to teach a network of devices

wherein the first type of device operates according to IEEE 1394 protocol and the

second type of device operates according to Ethernet protocol.

Lo'178 discloses a network of devices wherein the first type of device operates

according to IEEE 1394 protocol **(i.e. Figure 4, element 420)** and the second type of

device operates according to Ethernet **(i.e. Figure 4, element 440)** protocol. **(Lo**

clearly shows the bridge circuit connecting device based on IEEE 1394 to a

device based on Ethernet protocol in Figure 4. See also Column 7, Lines 40-53)

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify the network of devices based on the combination of

Heil'411's and Suda'255's to incorporate a first type of device that operates according to

IEEE 1394 protocol and a second type of device that operates according to Ethernet.

The motivation being IEEE 1394 protocol provides ability to support both isochronous

data such as video and voice as well as asynchronous data making it easy to allow

networking of different voice, video, audio, and data devices in home and small office

networks. Lo'178 further shows in Column 1, Lines 16-25 that in networked

communication system the popular domains to be bridged are based on Ethernet and

IEEE 1394 protocols.

Response to Arguments

17.   Applicant's arguments with respect to the 103 rejection of independent claim 1,

Palmer'355 In view of Gulick'128, have been considered but are moot in view of the new

ground(s) of rejection. Gulick'128 has been replaced by Einbinder'302 and it is the

position of the Examiner that Einbinder'302 addresses all concerns Applicant had with

the use of Gulick'128 as a prior art.

        Applicant's arguments with respect to the 103 rejection of claim 8, Banks'979

in view of Palmer'355 and Hewitt'211 have been considered but are moot in view of the

new ground(s) of rejection. Hewitt'211 has been replaced by Suda'255 and it is the

position of the Examiner that Suda'255 addresses all concerns Applicant had with the

use of Hewit'211 as a prior art. In particular Applicant consistently has maintained

Hewitt'211's teachings are in a device environment and not network environment.

Suda'255 teachings are in a network environment and should remedy such concerns.

Applicant's arguments with respect to the 103 rejection of independent claims 19 and 29, Palmer'355 In view of Banks'979 and Gulick'128, have been considered but are moot in view of the new ground(s) of rejection. Gulick'128 has been replaced by Einbinder'302 and it is the position of the Examiner that Einbinder'302 addresses all concerns Applicant had with the use of Gulick'128 as a prior art. Einbinder'302 now unequivocally teaches the real time protocol has always priority over the data/asynchronous protocol. Suda'255 also unequivocally teaches this limitation.

Applicant's arguments with respect to the 103 rejection of independent claims 8 and 42, Heil'411 and Brown'431, have been considered but are moot in view of the new ground(s) of rejection. Brown'431 has been replaced by Suda'255 and it is the position of the Examiner that Suda'255 addresses all concerns Applicant had with the use of Brown'431 as a prior art. Suda'255 now shows a cycle start signal is sent to start the periodic period where different protocols are transmitted.

In the Remarks, on page 2, with respect to the 102 rejection of claim 1, Applicant argues Romans'453 does not teach the first protocol having priority over the second protocol. Applicant's basic argument centers on the word priority not being expressly expressed by Romans'453 in relation to the protocols. Applicant basically indicates the Examiner's citations in Romans'453 lack any reference to priority.

Examiner respectfully disagrees. Examiner has clearly communicated in the current and previous Office Actions that the isochronous protocol transmitted in the contention free period has priority over asynchronous protocol transmitted in contentious period for two major reasons. The two key points that define priority in

Romans'453 is the position of the Contention Free Period and the duration of the

Contention Free Period. According to Figure 4, Contention Free Period always

precedes Contention Period and there is no Cap for Contention Free Period **(See**

Column 3, Lines 30-35 – one can have as many connections as the system

allows) while there is a cap for contention period **(See Column 3, Lines 1-3).** This

means the Contention Free Period has priority because it can entirely over take or limits

the Contention Period.

Applicant also argues Romans'453 does not teach a second type of device

operating according to only the second protocol. However, Applicant has not provided

any reasoning why the voice terminal shown in Figure 2 that is governed by the second

protocol, i.e. isochronous protocol will not address the limitation in question.

Examiner wants to stress at this juncture Applicant's teachings also has a single

reference to priority in paragraph 36 of the published specification. In paragraph 36

Applicant's teachings like Romans'453 defines priority of the Isochronous transmission

in its ability to limit or define the duration of the asynchronous traffic.

Examiner also has introduced Ito'731 to address claim 40 which was previously

addressed by Romans'453. This is simply to point out the fact that the limitations in

claims 1 and 40 are broad enough to be anticipated by several references.

In the Remarks, with respect to claim 8, on page 7 in the last paragraph,

Applicant argues Palmer'355 does not teach a third interface to communicate with the

switching device as claimed.

Examiner respectfully disagrees. Palmer'355 shows in Figure 3 the modified

hubs, also referred to as DA, and has three interfaces and the third interface is element

1008 and connects to the X-Hub Switch shown in Figure 4.

In the Remarks, with respect to claims 19 and 25 Applicant argues Palmer'355

fails to disclose sending a signal to indicate a start of a cyclic period.

Examiner respectfully disagrees. Palmer'355 teaches in Column 6, Lines 18-20

such a signal in the form of a time frame is distributed to all hubs by the x-hub switch

effectively meeting the limitation. Also please note that in this Office Action Suda'255

teaches such a limitation unambiguously.

In the Remarks with respect to claim 42, Applicant argues Heil'411 fails to teach

a second type of device operating according only to the second protocol.

Examiner respectfully disagrees. Heil'411 at the minimum in Column 5, Lines

10-20 suggests that the host device connecting to the ATM switch can have only one

protocol or two different protocols, where the protocol can be isochronous or non-

isochronous and hence adequately meets the limitation.

Last but not least the Applicant has presented a detailed analysis of IEEE 1394-

2000 as a distinguishing factor. However, none of the claims contain any reference to

IEEE 1394-2000. A reference to IEEE 1394 in the dependent claims can easily be

interpreted to refer to IEEE 1394-1995. Limitations that broadly claim functionalities of

IEEE 1394-2000 are broad enough to be addressed by prior arts such as Ito'731,

Suda'255, and Banks'979 which are all based on IEEE 1394.

Conclusion

18.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

The following US Patent is cited to show the state of the art with IEEE

1394/Ethernet Protocol conversion:

US Patent (6, 813, 651) to Smith et al

The following US Patents are cited to show the state of the art with respect to

ISOCHRONOUS/ASYNCHRONUS transmission schemes:

US Patent (6, 339, 584) to Gross et al

US Patent (6, 381, 647) to Darnell et al

US Patent (6, 011, 784) to Brown et al

The following US Patent is cited to show the state of the art with Ethernet

Switching technology:

US Patent (6, 577, 631) to Keenan et al

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to HABTE MERED whose telephone number is (571)272-

6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/Habte Mered/
Examiner, Art Unit 2616

06-29-08

/Aung S. Moe/

Supervisory Patent Examiner, Art Unit 2616